

In the claims:

I claim:

1. A method of identifying an item comprising the steps of:

transmitting a plurality of different first signals having a plurality of different frequencies;

receiving second signals having second frequencies from an item label associated with the item;

determining third frequencies associated with the item label which were not received from the item label; and

determining an item identification number from the second and third frequencies, including the substeps of

assigning first values equal to a first binary value to first data bits occupying first data bit positions in the item identification number for the second frequencies; and

assigning second values equal to a second binary value to second data bits occupying second data bit positions in the item identification number for the third frequencies.

2. The method as recited in claim 1, further comprising the steps of:

receiving a fourth signal having a fourth frequency from the item label; and

determining from receipt of the fourth signal that the second signals were from the item label.

3. A method of identifying an item comprising the steps of:

interrogating antennas associated with the item which are tuned to first frequencies of a plurality of different frequencies;

receiving the first frequencies;

determining second frequencies of the plurality of different frequencies; and

determining an item identification number from the first and second frequencies, including the substeps of

assigning first values equal to a first binary value to first data bits occupying first data bit positions in the item identification number for the first frequencies; and

assigning second values equal to a second binary value to second data bits occupying second data bit positions in the item identification number for the second frequencies.

4. A method of identifying an item comprising the steps of:

interrogating antennas affixed to the item as part of an item label;

receiving first different frequencies from the antennas;

determining second different frequencies associated with the item label which were not received; and

determining an item identification number from the first and second frequencies, including the substeps of

assigning first values equal to a first binary value to first data bits occupying first data bit positions

in the item identification number for the first frequencies;
and

assigning second values equal to a second binary value to second data bits occupying second data bit positions in the item identification number for the second frequencies.

5. A method of identifying an item comprising the steps of:

interrogating antennas;

receiving a plurality of different first frequencies from the antennas;

determining from a second frequency of the first frequencies that the antennas are associated with an item label;

determining third frequencies equal to a remainder of the first frequencies;

determining fourth frequencies associated with the item label which were not received; and

determining an item identification number from the third and fourth frequencies, including the substeps of

assigning first values equal to a first binary value to first data bits occupying first data bit positions in the item identification number for the third frequencies;
and

assigning second values equal to a second binary value to second data bits occupying second data bit positions in the item identification number for the fourth frequencies.

6. A method of identifying an item comprising the steps of:

establishing a mapping of a plurality of different frequencies to a plurality of different data bit positions in an item identification number;

interrogating antennas affixed to the item as part of an item label;

receiving only first frequencies of the plurality of different frequencies;

determining second frequencies equal to a remainder of the plurality of different frequencies; and

determining the item identification number from the first and second frequencies, including the substeps of

assigning first values equal to a first binary value to first data bits occupying first data bit positions in the item identification number for the first frequencies; and

assigning second values equal to a second binary value to second data bits occupying second data bit positions in the item identification number for the second frequencies.

7. A method of identifying an item comprising the steps of:

transmitting a plurality of different signals at a plurality of different frequencies;

receiving a first signal having a first frequency;

receiving second different signals having second different frequencies;

determining from receipt of the first signal that the first and second signals were reflected from antennas of an item label;

determining first data bit signals in the second different signals having first data bit signal frequencies;

determining second data bit signals having second data bit signal frequencies which were not received from the item label; and

determining an item identification number from the first and second data bit signal frequencies, including the substeps of

assigning first values equal to a first binary value to first data bits occupying first data bit positions in the item identification number for the first data bit signal frequencies; and

assigning second values equal to a second binary value to second data bits occupying second data bit positions in the item identification number for the second data bit signal frequencies.

8. The method as recited in claim 7, further comprising the steps of:

determining a check bit signal in the second different signals having a check bit signal frequency;

assigning a check bit value of one to a check bit; and

applying the check bit to the item identification number resulting from the first and second data bits.

9. The method as recited in claim 7, further comprising the steps of:

determining a check bit signal having a check bit signal frequency which was not received from the item label;

assigning a check bit value of zero to a check bit; and

applying the check bit to the item identification number resulting from the first and second data bits.

10. A radio frequency identification system comprising:

an RF interrogator which transmits signals at a plurality of different frequencies and which receives first frequencies of the plurality of different frequencies from an item label; and

a computer which determines second frequencies of the plurality of different frequencies which were not received by the RF interrogator, and which determines an item identification number from the first and second frequencies by assigning first values equal to a first binary value to first data bits occupying first data bit positions in the item identification number for the first frequencies and assigning second values equal to a second binary value to second data bits occupying second data bit positions in the item identification number for the second frequencies.

11. A radio frequency item identification system comprising:

an RF interrogator which transmits first signals at a plurality of different first frequencies and which receives second signals at second frequencies including a third signal at a third frequency;

a computer which determines from the third signal that the second signals are from an item label, which determines fourth signals at fourth frequencies associated with the item label that were not received by the RF interrogator, and which determines an item identification number from the second and fourth frequencies by assigning first values equal to a first binary value to first data bits occupying first data bit positions in the item identification number

for the second frequencies and assigning second values equal to a second binary value to second data bits occupying second data bit positions in the item identification number for the fourth frequencies.

12. A radio frequency item identification system comprising:

an RF interrogator which interrogates antennas affixed to the item as part of an item label and which receives first signals having first frequencies; and

a computer which establishes a mapping of a plurality of different frequencies including the first frequencies to a plurality of different data bit positions in an item identification number, which determines second signals having second frequencies within the plurality of different frequencies that were not received by the RF interrogator, and which determines the item identification number from the first and second frequencies by assigning first values equal to a first binary value to first data bits occupying first data bit positions in the item identification number for the first frequencies and by assigning second values equal to a second binary value to second data bits occupying second data bit positions in the item identification number for the second frequencies.